MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Jennifer M. Granholm, Governor; Steven E. Chester, Director

REMEDIATION AND REDEVELOPMENT DIVISION

INFORMATION BULLETIN #3

FORD/KINGSFORD PRODUCTS SITE
KINGSFORD/BREITUNG TWP., DICKINSON COUNTY

June 2004

Introduction

This is the third information bulletin from the Michigan Department of Environmental Quality (DEQ) regarding environmental conditions and actions that need to be taken to address the contamination and the presence of methane gas, at the Ford-Kingsford Products facility.

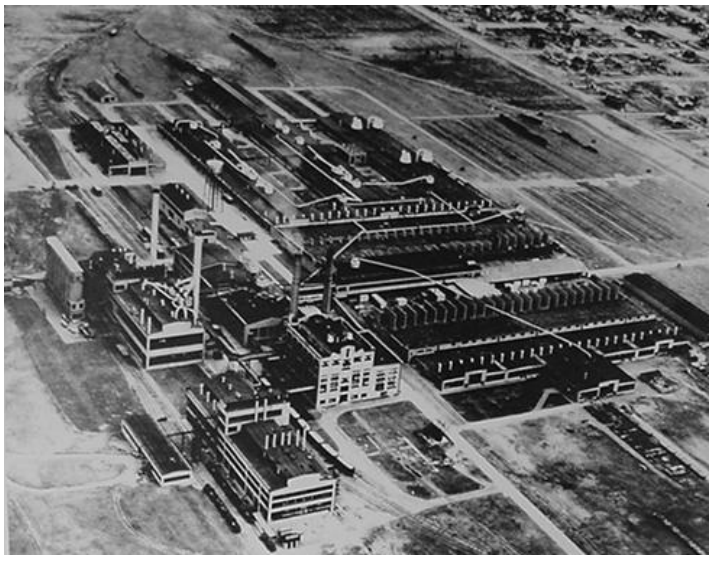
Investigation of the extent of contamination has been ongoing. The depth of contaminated groundwater, groundwater flow rate and the concentrations of contamination have been identified. Pockets of methane gas have also been located. Interim response actions that address the contamination are underway.

Ford Motor Company (Ford) and The Kingsford Products Company's (KPC) predecessor placed waste in disposal areas that resulted in soil and groundwater contamination in the designated Area of Concern (AOC – see Figure 1). As a result, the companies have an obligation to clean up, or remediate, the contamination in accordance with the State of Michigan's environmental laws. These remediation activities include controlling the discharge of contaminated groundwater to the Menominee River by collecting and treating contaminated groundwater, alleviating direct contact hazards associated with the disposal areas and former plant site, and identifying and diminishing any potential explosive hazards from methane within the AOC.

Public Information Meeting

The DEQ has scheduled a public information meeting for 6:30 p.m. on **Wednesday, June 16, 2004**, at the Kingsford High School Auditorium, 431 Hamilton Avenue, Kingsford. The purpose of this meeting is to provide an overview of cleanup activities to date, outline additional environmental response actions needed by Ford/KPC to comply with state laws, and to respond to questions community residents have regarding this project.

Site History



Former Ford Motor Company Plant Site, Kingsford, MI.

From 1921 through 1951, Ford manufactured wooden automotive body parts from its Kingsford, Michigan-based plant, later adding a wood carbonization and distillation plant to its operation in 1924. The wood carbonization plant produced charcoal and briquettes, while the distillation plant produced several commercial chemical products, including methanol, acetates, acetone, alcohols, creosote, pitch, ketones, and heavy/light oils. When Ford ceased its wooden automotive parts operation in 1951, the plant was sold to KPC's predecessor, Kingsford Chemical. Kingsford Chemical continued operation of the wood carbonization/distillation plant until its closure in 1961.

Waste products generated by Ford/KPC plant operations were disposed of in at least three known areas: Former Tar Pits (SW and NW pits), and Riverside and Charcoal Dumps (Figure 1). The

waste products included: off-spec chemicals, charcoal, noncommercial tar/creosote, non-combustible products, washdown water, waste-water, cooling water, and residual waste chemicals produced from plant shutdown and cleaning operations. *Methane present in the groundwater and soil at this site is a byproduct of the decomposition of many of these waste products.*

Site Geology

The site geology is comprised of a complex, varied and layered system of four loose, uncompacted soil types overlying a massive bedrock layer.

The groundwater flow is predominantly towards the Menominee River. The groundwater generally follows preferred pathways that consist of the more permeable layers of sand and gravel deposits. Multiple sand and gravel layers form a complex system of partially confined aquifers, separated by discontinuous layers of less permeable deposits. The saturated thickness of the groundwater system can range up to two hundred (200) feet.

Groundwater Impacts on Drinking Water

Samples of contaminated groundwater, Kingsford, MI.

Much of the hazardous substances that have contaminated the groundwater originated as liquid wastes disposed of in the southwest and northeast pits (SW and NW pits; Figure 1), located just west of the plant property. These wastes infiltrated the ground, migrating vertically into the deeper portion of the groundwater system, then laterally towards the Menominee River. In the vicinity of the pits, much of the underlying subsurface soils (approximately 300 feet in thickness) have been contaminated.

Several hazardous substances have been identified in the groundwater at the site that exceed the Residential Drinking Water Criteria -- the concentrations that are safe for home drinking water, as established in Part 201 (Environmental Remediation) of the Michigan Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended. These areas are primarily in the central and western portions of the AOC. The hazardous substances identified include numerous organic and inorganic contaminants.

The potential threat to human health posed by the drinking water pathway must be addressed in a reliable, protective and permanent manner. The following related actions have been implemented or proposed:

- Ford and KPC have identified private residential wells within the AOC, have properly abandoned the wells, and have provided an alternate water source for these homes.
- Ford and KPC are working with the City of Kingsford on a groundwater ordinance to prohibit installation and use of any groundwater supply wells in the AOC.

Public Safety: the public water supply wells that service nearly all of the affected residences and businesses are located outside of the AOC, near the Ford Airport. The City of Kingsford tests its public supply wells on a regular basis and these wells meet federal and state drinking water standards.

Groundwater Impacts on Surface Water

Close up of a foaming groundwater seep along the east bank of the Menominee River, Kingsford, MI.

Samples from monitoring wells along the east bank of the Menominee River reveal groundwater

contamination migrating from the former waste disposal areas and discharging into the river along a roughly ½ mile long stretch. Hazardous substances identified in these wells exceed the NREPA Generic Groundwater Surface Water Interface (GSI) Criteria, based on both chronic and acute toxicity to aquatic life.

Along with the venting contaminated groundwater, methane "boils" are visible along several areas of the Menominee River. The methane is a by-product of the decomposition of many of the hazardous substances present in the groundwater contamination plume. Any unpermitted discharge of contaminated groundwater to the river is prohibited by State law.

Methane boils rise to the water's surface along the east bank of the Menominee River, Kingsford, MI.

Ford and KPC are required to take appropriate remedial actions to prevent further illegal discharges; actions include:

- Controlling the discharge of contaminated groundwater into the Menominee River.
- Providing adequate treatment for the contaminated groundwater extracted.

To date, pilot programs implemented by Ford and KPC over the past four years have captured less than 10% of the volume of illegal discharges. However, a full-scale groundwater extraction and treatment system is expected to be in place within two years.

Public Safety: While the excedences of water quality criteria pose a risk to aquatic life, the expected levels of contaminants reaching the Menominee River do not appear to pose a concern for human exposure (e.g. swimming, wading, or fish consumption).

Former Waste Disposal Areas

Riverside Dump

The Riverside Dump is owned by the City of Kingsford. It is located in a relatively undeveloped area on the south side of Pyle Drive.

Riverside Dump area (Winter 2000), Kingsford, MI.

The buried waste materials contain arsenic and lead at concentrations exceeding Residential Direct Contact Criteria (RDCC). The RDCC are the concentrations that are safe for direct contact (incidental ingestion and/or skin exposure) in a residential setting.

Methane gas has been detected near the Riverside Dump, and is being actively extracted. This gas does not originate at the dump. This methane is primarily generated from the degradation of organic constituents present in the groundwater from upgradient sources.

Ford and KPC are required to mitigate unacceptable risks from all direct contact hazards associated with the hazardous substances present within the Riverside Dump.

Ford and KPC have implemented or propose the following actions, which will be appropriate responses, if properly completed with concurrence of the property owner:

- Installed a 30-inch thick exposure barrier to prevent direct contact with the waste materials.
- Installed storm water and runoff controls to reduce any pooling of precipitation.
- Impose deed restrictions to prevent any disruption of the exposure barrier.

- Install permanent markers to identify the boundaries of the contaminated area.

- Redevelop the Riverside Dump area into a youth soccer field.

Final restoration work is expected to be completed by Summer 2004. Deed restrictions and permanent markers are to be included in a final site-wide remedial action plan.

Riverside Dump (Spring 2004), Kingsford, MI.

Public Safety: Recreational use of this area is appropriate; however, the protective cover should not be disturbed.

Southwest Pit (Lodal Park)

This area is owned by the City of Kingsford, and is located at Lodal Park's north end. A baseball diamond, football field, and grass-covered areas are located over the Southwest Pit (SW Pit).

Southwest Pit (Spring 2004), Kingsford, MI

The buried waste materials contain arsenic and lead exceeding Residential Direct Contact Criteria. Methane gas is also present in the waste materials, and in the shallow soil surrounding the SW Pit.

Ford and KPC are required to mitigate unacceptable risks from all direct contact hazards associated with the hazardous substances present within the SW Pit, and to mitigate any unacceptable risks posed by methane.

Ford and KPC have implemented or propose the following actions, which will be appropriate responses, if properly completed with concurrence of the property owner:

- Increase the existing soil barrier (as needed) to a minimum 30 inch thickness to prevent direct contact with the waste materials.

- Installed storm water and runoff controls to reduce any pooling of melt/rain water.

- Impose deed restrictions to prevent any disruption of the exposure barrier.

- Install permanent markers to identify the boundaries of the contaminated area.

- Expand the existing soil vapor extraction (SVE) system as needed. SVE is a technique that involves removing contamination-laden vapors from the soil under a vacuum.

Final restoration work is expected to be completed by Summer 2004. Deed restrictions and permanent markers are to be included in a final site-wide remedial action plan.

Public Safety: Recreational use of this of this area is appropriate; however, the protective cover should not be disturbed.

Northeast Pit (Balsam Street)

Northeast Pit (Spring 2004), Kingsford, MI

The Northeast Pit (NE Pit) is privately owned, and is located on the west side of Balsam Street between Dickinson Homes and Carter Street. The majority

of this area is covered with sand and gravel; tar seeps to the ground surface at several points.

The waste materials found in the Northeast Pit are covered with sand and gravel ranging up to 16 feet in thickness except for those areas where pooled tar is present at the land surface. During the summer months, Ford and KPC are required to remove tar from these areas, and prohibit entry to areas presenting a direct contact hazard.

Surface tars at the NE Pit, Kingsford, Michigan

The NE Pit is the most heavily contaminated of the disposal areas. The buried waste materials contain a variety of organic and inorganic hazardous substances which has resulted in soil contamination at concentrations exceeding Soil Criteria Protective of Residential Drinking Water. This area is a continuing source of contamination to the underlying groundwater. In addition, levels of some contaminants were found to exceed the Residential and Industrial Direct Contact Criteria.

Gas phase methane also appears to be present in the waste materials and in the shallow soil surrounding the NE Pit.

Ford and KPC are required to alleviate:

- unacceptable risks from all direct contact hazards associated with the hazardous substances present within NE Pit.
- unacceptable risks posed to the groundwater.
- unacceptable risks posed by methane.

Ford and KPC have proposed the following actions, which will be appropriate responses, if properly completed with concurrence of the property owner.

- Install a 30-inch thick low-permeability cover system to reduce infiltration and prevent direct contact with the waste materials.
- Install storm water and runoff controls to reduce any pooling of precipitation.
- Impose deed restrictions to prevent any disruption of the exposure barrier.
- Install permanent markers to identify the boundaries of the contaminated area.
- Install a gas venting system for management of methane.

Construction at the NE Pit is expected to begin Summer 2004.

Public Safety: Currently, walking across or playing in this area should be avoided.

Charcoal Dump

Charcoal Disposal Dump (Spring 2004), Kingsford, MI

This area is approximately 1.7 acres of privately owned land located in a relatively undeveloped area between Cowboy Lake and River Hills Road. The waste materials found in the Charcoal Dump Area (CDA) consist mostly of charred wood and charcoal mixed with sand. The waste material was often thinly covered by or intermixed with sand fill, with a few exposed waste areas.

Levels of a few organic and inorganic compounds found in some of the waste materials exceed the Soil Criteria Protective of Residential Drinking Water. However, these hazardous substances do not appear to be a source of contamination to the underlying groundwater.

Tetrachloroethene concentrations in the groundwater were higher than the Drinking Water Criteria in one groundwater monitoring well positioned up-gradient of the CDA. The source of the tetrachloroethene is currently unknown, but it appears to originate from outside the AOC.

The CDA poses no unacceptable risk pursuant to Part 201 of the NREPA.

Public Safety: The Dickinson/Iron District Health Department has been testing the private wells in the area of Cowboy Lake, and these wells meet federal and state drinking water standards.

Breen Street Dump

This area is approximately 1.7 acres of privately owned land located at the west end of West Breen Street. The area is flat and a private residence has been built on the site.

Waste materials are somewhat visible in the soil along the western and southern edges of the former disposal area. The waste materials appear to be covered with sand fill, but the thickness of the fill is unknown.

Methane gas also appears to be present along the southeast boundary of the Breen Street Dump.

Ford and KPC are required to mitigate any unacceptable risks posed by the Breen Street Dump.

Ford and KPC are required to evaluate the conditions at the Breen Street Dump similar to the way the other dumps at the site were addressed.

Methane Gas

Accumulations of gas phase methane have been identified at eight locations within the AOC. Most recently, a pocket of methane gas was identified in the Fall of 2003 at 1525 Pyle Drive. These areas are being mitigated by passive and/or active Soil Vapor Extraction systems.

Since 1998, more than two million pounds of methane have been removed from these areas. The methane is primarily generated from the degradation of organic constituents present in the groundwater and/or the organic material present within the waste disposal areas.

Methane explosion, 2104 West Breen Street, Kingsford, MI; Summer 1995

Ford and KPC are required to mitigate unacceptable risks posed by methane gas.

Ford and KPC have implemented or propose the following actions, which are appropriate responses, but do not completely mitigate the risks posed by methane gas:

- Implementation of an emergency response plan to ensure the safety of the communities should a methane gas emergency arise.
- Implementation of a methane detector enhancement program to serve those residents who choose to participate.
- Implementation of a commercial methane detection enhancement program to serve those businesses that choose to participate.
- Ford and KPC are working with the City of Kingsford on a methane detector ordinance that would require installation and use of methane detectors in the AOC.

Ford and KPC are also expected to implement the following appropriate actions:

- Define the extent and migration pathways of methane.
- Vent areas where methane levels in the soil gas are at or above 1.25% (which is 25% of the lower explosive limit).
- Offer installation of a vapor control system for all structures. (A vapor control system similar to that of a Radon Gas Mitigation System, which allows for gas beneath a structure to passively

and safely vent to the atmosphere, may be appropriate.)

Upcoming Activities

In addition to the DEQ's June 16, 2004 public information meeting, the DEQ is in the process of developing a web site for the Kingsford/Breitung Twp Site.

For More Information

This bulletin is being provided to residents within the AOC, and is available from the DEQ upon request. For more comprehensive information on the project and activities, you may either visit the Information Repository located at the Dickinson County Library, 401 Iron Mountain Street, Iron Mountain, or contact the DEQ project coordinator:

Christopher Austin
DEQ Remediation and Redevelopment Division
Crystal Falls Field Office
1420 U.S. 2 West
Crystal Falls, MI. 49920
Phone: 906-875-2072; Fax: 906-875-3336
Email address: Austincl@Michigan.gov

If you did not receive this bulletin in the mail, and would like to receive further information regarding the site, please contact Mr. Austin to have your name added to the DEQ mailing list.

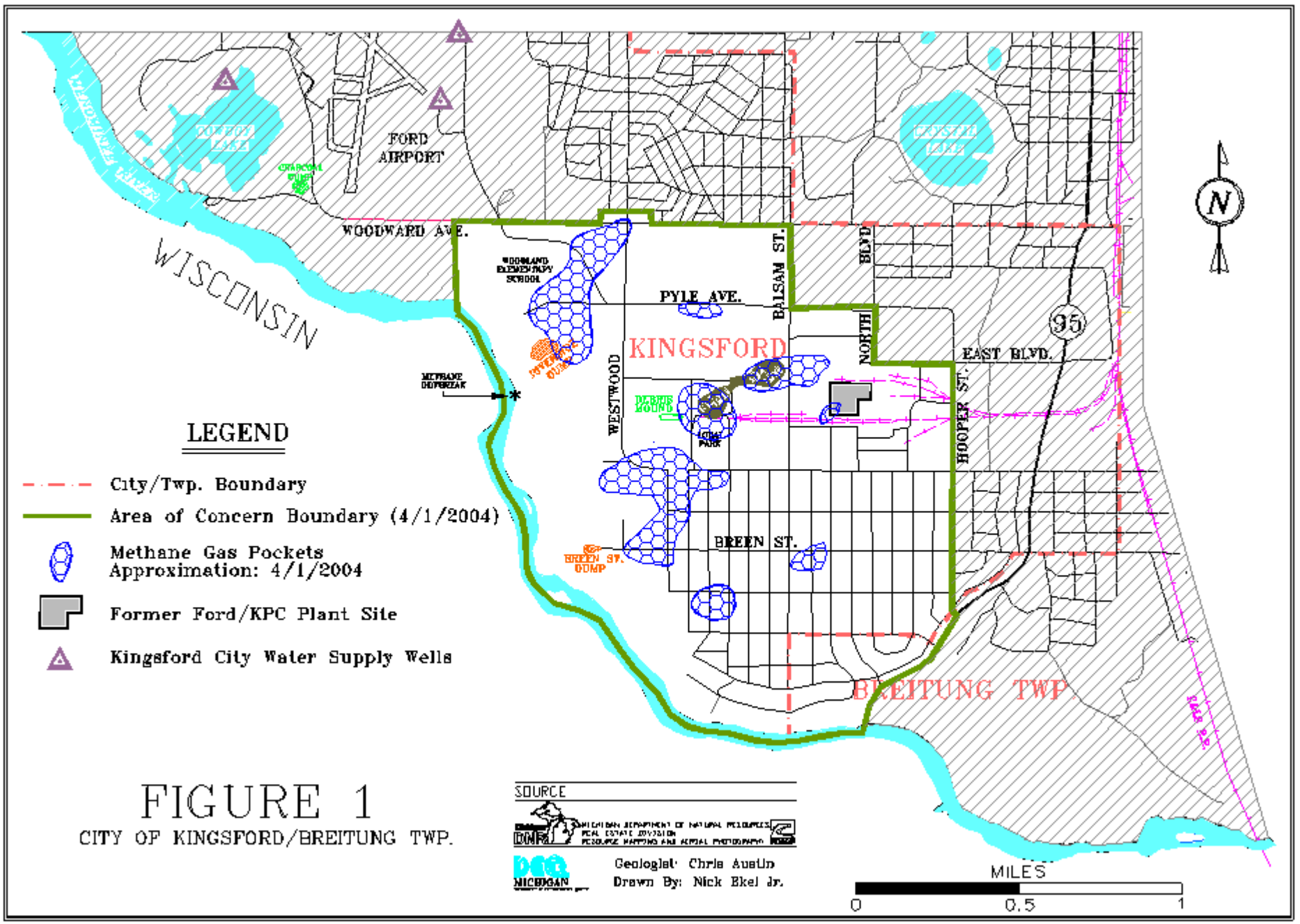


FIGURE 1

CITY OF KINGSFORD/BREITUNG TWP.